WHAT IS CLAIMED IS:

1. A laser scanning microscope which scans a laser beam on a sample by a scanning optical system in a scanning optical system main body to detect a fluorescence or reflected light from the sample,

wherein a light source section comprising a light source manufactured by a semiconductor process and an optical fiber provided on a radiation side of the light source is incorporated in the scanning optical system main body.

2. The laser scanning microscope according to claim 1, wherein a detection section which detects the fluorescence or the reflected light is contained in the scanning optical system main body.

3. The laser scanning microscope according to claim 1, comprising a plurality of the light sources,

wherein one of the optical fibers is provided on the radiation side of a plurality of the light sources.

4. The laser scanning microscope according to claim 2, comprising a plurality of the light source,

wherein one of the optical fibers is provided on the radiation side of a plurality of the light sources.

5. The laser scanning microscope according to claim 1, comprising a plurality of the light sources and a plurality of the optical fibers,

wherein the optical fibers are respectively provided on the radiation sides of a plurality of

the light sources.

6. The laser scanning microscope according to claim 2, comprising a plurality of the light sources and a plurality of the optical fibers,

wherein the optical fibers are respectively provided on the radiation sides of a plurality of the light sources.

7. The laser scanning microscope according to claim 1, wherein the light source is a semiconductor laser diode.

8. The laser scanning microscope according to claim 2, wherein the light source is a semiconductor laser diode.

9. The laser scanning microscope according to claim 1, wherein the optical fiber is a single mode.

10. The laser scanning microscope according to claim 2, wherein the optical fiber is a single mode.

11. The laser scanning microscope according to claim 1, wherein the optical fiber is of a polarization plane preserving type.

12. The laser scanning microscope according to claim 2, wherein the optical fiber is of a polarization plane preserving type.

13. A method of connecting a semiconductor light source to a scanning microscope, in a laser scanning microscope which scans a laser beam on a sample by a scanning optical system and detects a fluorescence or

reflected light from the sample,

the method comprising using a light source manufactured by a semiconductor process, and leading the laser beam from the light source to the scanning optical system through an optical fiber.

14. The method of connecting a semiconductor light source to a scanning microscope according to claim 13, wherein the scanning optical system and the light source are accommodated in one housing.

15. A semiconductor laser light source unit comprising:

a semiconductor laser;

a beam shaping section which condenses a laser beam emitted from the semiconductor laser and shapes a beam form;

an optical fiber which transmits the laser beam;

a fiber incident optical system which focuses the laser beam outgoing from the beam shaping section on an incident end surface of the optical fiber; and

a fiber radiation optical system which collimates the laser beam outgoing from the optical fiber.

16. The semiconductor laser light source unit according to claim 15, wherein the beam shaping section is integrally provided to the fiber incident optical system.

17. A scanning unit for a laser scanning microscope comprising:

a semiconductor laser light source unit defined in claim 15; and

a scanning optical system used to scan a laser beam emitted from the semiconductor laser light source unit on a sample,

the semiconductor laser light source unit and the scanning optical system being accommodated in one housing.

18. The scanning unit for a laser scanning microscope according to claim 17, wherein a detection section which detects the light emitted from the sample is further accommodated in the housing.

19. The semiconductor laser light source unit according to claim 15, comprising a plurality of the semiconductor lasers,

wherein the beam shaping section comprises: a beam shaping optical system which condenses each of laser beams emitted from a plurality of the semiconductor lasers and performs beam shaping; and a combining optical system which combines a plurality of the laser beams into one laser beam.

20. The semiconductor laser light source unit according to claim 19, wherein a plurality of the semiconductor laser includes a pair of laser light sources which emit laser beams which have the same wavelength and whose polarization planes are substantially orthogonal to each other, and

the combining optical system includes a polarized beam splitter which combines the both laser beams which have the same wavelength and whose polarization planes are substantially orthogonal to each other and outputs a result by reflecting or transmitting the both laser beams in accordance with directions of the polarization planes of the laser beams.

21. The semiconductor laser light source unit according to claim 19, wherein a plurality of the semiconductor lasers includes laser light sources which emit laser beams having different wavelengths, and

the combining optical system includes a dichroic mirror which combines the laser beams and outputs a result by reflecting or transmitting the laser beams in accordance with the wavelengths.

22. The semiconductor laser light source unit according to claim 15, wherein the light source unit comprises a plurality of the semiconductor lasers,

a plurality of the optical fibers are provided in accordance with a plurality of the semiconductor lasers,

a plurality of the beam shaping sections are provided in accordance with a plurality of the semiconductor lasers, condense and shape the laser beams emitted from the respective semiconductor lasers, and focus them on the incident end surfaces of the respective optical fibers, and

the semiconductor laser light source unit further comprises a combining optical system which combines parallel beams outputted from the respective fiber radiation optical systems of a plurality of the optical fibers into one beam.